

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A molding die for molding an optical element, comprising:

a die base body ~~formed by shaping~~ consisting of an amorphous alloy having a super-cooled liquid phase~~[[,]]~~; and

a die face ~~formed by applying a die face forming process onto~~ on a part of the die base body, ~~and used to form an optical surface of the optical element or a dimensional reference surface.~~

wherein the molding die is produced by the method comprising the steps of:

molding a base material consisting of the amorphous alloy by softening the base material with heat and by pressing the softened base material to form the die base body; and

forming the die face onto the part of the die base body,

wherein the die face corresponds to an optical surface of the optical element or a dimensional reference surface.

2. (Cancelled)

3. (Currently amended) The molding die of claim 1, wherein the step of forming the die face ~~forming process is a~~ comprises ~~shaving process to shave~~ the part of the die base body.

4. (Currently amended) The molding die of claim 3, wherein the step of shaving process is a comprises cutting process the part of the die base body.
5. (Currently amended) The molding die of claim 4, wherein the step of cutting process is conducted with a diamond cutting tool.
6. (Currently amended) The molding die of claim 3, wherein the step of shaving comprises process is a grinding process the part of the die base body.
7. (Currently amended) The molding die of claim 1, wherein the step of forming the die face forming process is a process to apply an comprises exposing process the part of the die base body and [[a]] developing process onto the part of the die base body.
8. (Currently amended) The molding die of ~~claim 1~~claim 7, wherein the step of forming the die face forming process is a further comprises shaving process to shave the part of the die base body and a process to apply an exposing process and a developing process onto the part of the die base body.
9. (Currently amended) The molding die of claim 1, wherein the die face [[has]] comprises a plurality of protrusions or a plurality of hollows so that a plurality of hollows or a plurality of protrusions are transferred from the die face and formed onto

~~the optical surface of the optical element in correspondence with the plurality of protrusions or the plurality of hollows on the die face.~~

10. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming an outer structure having an equivalent refractive index region ~~[[on the]] onto an~~ optical surface of the optical element ~~form a fine structure having a equivalent refractive index region~~when the optical element is molded with the molding die.

11. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming an outer structure onto an ~~[[on the]]~~ optical surface of the optical element when the optical element is molded with the molding die, the outer structure creating ~~form a fine structure to create~~ a reflection preventing effect.

12. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming an outer structure onto an ~~[[on the]]~~ optical surface of the optical element when the optical element is molded with the molding die, the outer structure generating ~~form a fine structure to generate~~ a structural double refraction.

13. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming an outer structure having a

resonance region onto an [[on the]] optical surface of the optical element ~~form a fine-structure having a resonance region~~ when the optical element is molded with the molding die.

14. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming an outer structure onto an [[on the]] optical surface of the optical element when the optical element is molded with the molding die, the outer structure having [[have]] a function to adjust a change in aberration due to a wavelength change of a light source to emit a light flux incident onto [[to]] the optical element.

15. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming an outer structure onto an [[on the]] optical surface of the optical element when the optical element is molded with the molding die, the outer structure having [[have]] a function to adjust a change in aberration due to a temperature change.

16. (Currently amended) The molding die of claim 9, wherein the plurality of hollows or the plurality of protrusions are capable of forming ring-shaped diffractive zones onto an [[on the]] optical surface of the optical element when the optical element is molded with the molding die ~~form a ring-shaped diffractive zones.~~

17. (Currently amended) The molding die of ~~claim 9~~claim 1, wherein the amorphous alloy has a hardness Hv of 300 or more in ~~[[the]]~~ room temperature.
18. (Currently amended) The molding die of ~~claim 9~~claim 1, wherein the amorphous alloy has a hardness Hv of 700 or less in ~~[[the]]~~ room temperature.
19. (Currently amended) The molding die of ~~claim 9~~claim 1, wherein the ~~composition of the amorphous alloy contains~~ comprises palladium.
20. (Currently amended) The molding die of ~~claim 9~~claim 19, wherein the ~~composition of the amorphous alloy contains~~ comprises palladium with a rate of 30 mol% to 50 mol%.
21. (Currently amended) The molding die of ~~claim 9~~claim 1, wherein the ~~composition of the amorphous alloy contains~~ comprises at least one of the following: copper, nickel, phosphor, zirconium, ~~[[an]]~~and aluminum with a rate of 3 mol% or more.
22. (Withdrawn) An optical element, comprising:
an optical surface on which a plurality of protrusions or a plurality of hollows are formed,
wherein the plurality of protrusions or a plurality of hollows are arranged with a pitch smaller than a wavelength of light transmitting through the optical surface.

23. (Withdrawn) The optical element of claim 22, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure having a equivalent refractive index region.

24. (Withdrawn) The optical element of claim 22, wherein he plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure to create a reflection preventing effect.

25. (Withdrawn) The optical element of claim 22, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure to generate a structural double refraction.

26. (Withdrawn) The optical element of claim 22, wherein the plurality of hollows or the plurality of protrusions on the optical surface of the optical element form a fine structure having a resonance region.

27. (Withdrawn) The optical element of claim 22, wherein the optical element comprises a lens.

28. (Withdrawn) The optical element of claim 22, wherein the optical element is made of a plastic material.

29. (Withdrawn) The optical element of claim 22, wherein the optical element is made of a glass material.
30. (Withdrawn) A master die to form a molding die used for molding an optical element, comprising:
a master die base body; and
a master die face having a plurality of protrusions or a plurality of hollows so that a plurality of hollows or a plurality of protrusions are transferred from the master die face and formed on a die face of the molding die in correspondence with the plurality of protrusions or the plurality of hollows on the master die face.
31. (Withdrawn) The master die of claim 30, wherein the plurality of protrusions or the plurality of hollows are formed by applying an exposing process and a developing process on the master die face.
32. (Withdrawn) The master die of claim 31, wherein the master die base body is made of a material having a hardness Hv of 300 or more in the temperature of 500 °C.
33. (Withdrawn) The master die of claim 31, wherein the master die base body is made of a quartz.

34. (Withdrawn) The master die of claim 31, wherein the master die base body is made of a mono crystal silicon.

35. (Withdrawn) The master die of claim 31, wherein the master die base body is made of a material containing a tungsten carbide.